The nutrition and health considerations of Meat, Organs & Animal Fats

Complete proteins • Essential vitamins • Anti-inflammatory fats • Brain fuel

A Brief Historical Overview of the Ancestral Human Diet

Paleontological and isotopic evidence suggests that for the vast majority of human existence (over 2.5 million years for the *Homo* genus, ~300,000 years for *Homo sapiens*), humans functioned as highly effective, apex predators at the top of the terrestrial food chain **(Ben-Dor et al., 2021)**. Their primary, most sought-after food sources were **animals,** which offered meat, fat, organs, marrow, and blood. This was not a simple preference; it was a survival strategy for acquiring dense calories and essential nutrients. Their primary food sources were from **animals (cattle, pigs, goats, sheep, wild game, etc)** and **seasonally available plants (roots, tubers, berries, nuts, occasional grains in some regions later on)** supplemented this animal-based foundation, but were often less reliable or less calorically dense (**Cordain, et al., 2000).**

A comprehensive analysis of worldwide hunter-gatherer diets confirms this, showing that a majority of these societies derived over half of their total energy intake from animal-based foods. The development of humans' exceptionally large, energy-intensive brains is a hallmark of human evolution. This metabolically 'expensive' organ requires a **consistent supply of high-quality calories and specific nutrients.**

The Co-Evolution of Diet and the Human Brain

Cooking also played a crucial role in unlocking more nutrients. Human brains grew larger *at the expense* of a smaller gut, a trade-off made possible by shifting to more easily digestible, calorie-dense, and nutrient-rich animal foods **(Aiello & Wheeler, 1995).** This 'expensive tissue hypothesis' is further supported by the argument that the inclusion of meat was the primary catalyst that allowed early hominids to break through the energetic constraints that limit the brain size of other primates **(Milton, 1999)** Less energy needed for digesting massive amounts of plant fiber meant more energy for the brain. The development of stone tools (~2.6 million years ago) allowed early humans to butcher large animals, access marrow from bones, and efficiently process meat. The controlled use of fire was a revolutionary step, with some anthropologists arguing that the act of cooking itself was the primary catalyst that made us human, by externalizing digestion and unlocking a massive surplus of energy for brain growth **(Wrangham, 2009)**. Cooking meat made it more digestible, safer due to killing pathogens, and allowed for greater nutrient extraction.

Physiological Evidence of Our Carnivorous Heritage

The unique physiology of humans shows clear adaptations for digesting and utilizing animal products, having a **highly acidic stomach environment** (pH 1.5-3.5), similar to carnivores and scavengers. The acidity if human stomachs is crucial for breaking down complex proteins in meat, killing harmful bacteria and pathogens present in raw animal foods. This directly contrasts with herbivore species that have distinct, multi-chambered stomachs and very long, specialized intestines designed for fermenting and breaking down complex plant cellulose fibers. Humans possess a gallbladder, an organ whose primary function is to store and release bile, a substance that is essential for **emulsifying and digesting dietary fats.** The presence of a functional gallbladder strongly indicates an evolutionary history of consuming significant amounts of dietary fat, particularly animal fats. Humans have a robust metabolic pathway called **ketogenesis**, allowing the liver to produce ketone bodies from fat when carbohydrate intake is very low.

Ketones are an excellent fuel source for the brain and body, providing stable energy. This adaptation allowed ancient humans to thrive during periods of low carbohydrate availability (winter, hunting-focused periods). This ability to efficiently switch to fat-burning highlights humanity's adaptation to periods where animal foods were the primary fuel, a crucial advantage given the immense energetic value of meat and fat **(Speth, 1989).** Human bodies **require** certain nutrients that are either **exclusively found in animal foods or are far more bioavailable from animal sources**: **Vitamin B12:** Essential for nerve function and DNA synthesis. **Preformed Vitamin A (Retinol):** Crucial for vision, immune function, and growth. **Vitamin K2 (MK-4 & MK-7):** Important for calcium metabolism, bone, and heart health. **Heme Iron:** Critical for oxygen transport. **Creatine, Carnosine, Taurine, Carnitine:** Important compounds for muscle function, brain health, and energy metabolism. **DHA (Omega-3):** Crucial for brain fat, improving eyesight, and lowering the risk of cardiovascular diseases.

The Great Divide: Two Paths Forged By Food

For millennia after the last Ice Age, humanity diverged into two primary paths shaped by the land itself. In the fertile river valleys of the world—the Nile, the Tigris-Euphrates, the Indus, **the Agricultural Revolution** took root. Humans learned to cultivate grains and legumes, a process which allowed for the creation of food surpluses. This fueled the growth of settled villages, which eventually grew into cities and the first complex states. This sedentary life, built on controlling land and plant cycles, created the foundation for what is often defined as "civilization." However, on the vast grasslands, steppes, and arid regions where intensive farming was impractical, the Great Plains, the Eurasian Steppe, the African Sahel, another way of life dominated: **Pastoralism**. These nomadic or semi-nomadic cultures built their entire existence around **the herding of animals, cattle, sheep, goats, camels, and horses**, following them across the land in search of pasture and water.

This fundamental difference in subsistence strategy forged two profoundly different types of cultures. Farming societies tended to develop hierarchical structures to manage land, labor, and stored grain, with diets primarily based on high-carbohydrate staples like wheat, rice, or corn. For the average person, meat was often a secondary or less frequent food source. Their worldview became rooted in linear time, seasonal planting, property ownership, and the goal of controlling nature. In stark contrast, pastoralist societies were often more mobile and fiercely independent, with social structures frequently based on clans and kinship. Their diets were the mirror image of the farmers': **high in animal protein and fat, relying on milk, blood, and meat for sustenance**. Their worldview was often cyclical, deeply connected to the health of their herds and the natural rhythms of the untamed lands they roamed.

The tension between the farmer and herder is one of the oldest recurring themes in human history, often manifesting as conflict over land and resources. Agricultural societies viewed pastoralists as **unsettled barbarians**, while pastoralists often saw farmers as **soft and tied to the land**. This ancient divide echoes today in our modern diets; the agricultural world gave us abundance and specialization, but also a reliance on carbohydrates and a disconnect from the animal foods that fueled human evolution. Conversely, the pastoralist world, while often viewed as "primitive," preserved an ancestral way of eating rich in the very foods our bodies are optimally designed for. This dietary advantage often translated into a formidable military edge; the high-energy, nutrient-dense diet of the Eurasian steppe tribes(i.e Huns, Mongols, Scythians) fueled the stamina and strength of their warrior horsemen, enabling their conquests across much of Asia.

The Agricultural Revolution – A Recent Evolutionary Shift

The shift to agriculture over 12,000 years ago, with its reliance on grains and starchy staples, is a very recent development in human evolutionary history and represents **less than 0.4% of the *Homo* genus' evolutionary timeline.**. While agriculture allowed for larger, settled populations, it often came at a cost. Reliance on a few staple crops led to less dietary diversity. Grain-based diets can be lower in certain vitamins, minerals, and bioavailable protein compared to hunter-gatherer diets rich in animal foods. Archaeological analysis and comparison of pre- and post-agricultural skeletons consistently shows that the shift to a grain-based diet, while allowing for larger populations, often came at a significant cost to individual health, including a decline in stature, bone density, and dental health **(Richards, 2002)**.

In the past 150-200 years following the Industrial Revolution, these problems have grown worse, as **the mass production and processing of food fundamentally altered our relationship with nutrition.** The rise of industrial milling stripped grains of their bran and germ, creating nutrient-void refined flours that spiked blood sugar and lacked essential fiber. The invention of industrial seed oil extraction introduced unstable, inflammatory fats into the food supply at an unprecedented scale. Furthermore, the advent of mass food preservation chemicals and the modern supermarket led to a boon in ultra-processed 'food-like products' filled with refined sugars, artificial additives, and cheap, nutrient-poor fillers, all marketed for convenience and profit.

This industrial food system, built on the foundation of agricultural staples, exacerbated existing nutrient deficiencies, introduced new metabolic stressors, and created an environment where chronic disease became the norm rather than the exception. Furthermore, the industrialization of food production, coupled with increasing urbanization and a growing disconnect from the realities of animal husbandry and butchery, fostered a significant cultural shift away from traditional nose-to-tail eating. **As food became more processed, packaged, and sanitized in appearance, an 'ick factor' developed around less 'clean-looking' or unfamiliar animal parts, particularly organ meats.** Liver, heart, kidney, and tongue, once prized for their nutrient density and utilized out of respect and resourcefulness, began to be perceived by many as "gross," "poor people's food," or simply undesirable.

All Nine Essential Amino Acids

Animal-based foods provide all **9 essential amino acids(Histidine, Isoleucine, Leucine, Lysine, Methionine, Phenylalanine, Threonine, Tryptophan, Valine)** in the correct ratios for human physiology. These are called **“complete proteins”**, and are critical for bodily repair, growth, hormone regulation, immune defense, and neurotransmitter function. A **complete protein** (also referred to as a "high-quality protein") is a dietary protein source that contains all nine **essential amino acids (EAAs)** in proportions that reasonably approximate human physiological requirements for growth, repair, and maintenance of bodily tissues and functions. These nine EAAs are termed "essential" given humans cannot synthesize them from scratch or in sufficient quantities to meet metabolic demands. While the official Recommended Dietary Allowance (RDA) for protein is set at a minimal level to prevent deficiency, a significant body of research suggests that the optimal intake for robust health, muscle maintenance, and satiety is considerably higher, often exceeding 1.6 g/kg(0.73 g/lbs) of body weight **(Phillips et al., 2016)**.

- Proteins are made up of **amino acids**, 20 of which are commonly used by the body.
- **Nine of them are “essential,”** meaning the human body **cannot synthesize them** and must obtain them from food.
- Animal sources including **beef, chicken, eggs, fish, dairy, and organ meats** naturally contain all nine in optimal ratios.
- In contrast, most plant sources (beans or grains) are **“incomplete,”** lacking one or more essential amino acids or offering them in suboptimal amounts.
- Supports **muscle repair**, especially during physical activity, injury recovery, or aging.
- Promotes **satiety** (feeling full), helping reduce unnecessary calorie intake.
- Facilitates the production of **hormones and enzymes**, including dopamine, serotonin, and insulin.
- Strengthens the **immune system** by producing antibodies and immune cells.

Fat-Soluble Vitamins & Micronutrients

Fat-soluble vitamins are a class of organic micronutrients that are **lipophilic**, meaning they dissolve in fats and oils, rather than in water. This intrinsic chemical property dictates their entire lifecycle within the human organism – from absorption and transport to storage and excretion, setting them distinctly apart from their water-soluble counterparts (B-complex vitamins and Vitamin C). The principal members of this vital cohort are Vitamin A (retinoids and carotenoids as precursors), Vitamin D (calciferols), Vitamin E (tocopherols and tocotrienols), and Vitamin K (phylloquinone and menaquinones) **(Gropper & Smith, 2017)**.

- **Fat-soluble vitamins (A, D, E, K2)** are found almost exclusively, in their most bioavailable forms, animal fats and organ meats, especially liver, egg yolks, and grass-fed butter **(Price, 1939)**.
- These vitamins are essential for **immune function, hormone balance, eyesight, bone strength,** and **calcium metabolism.**
- Animal products provide **heme iron**, **zinc, selenium, B12, and choline** in **bioavailable forms** that the body easily absorbs, far more efficiently than from the non-heme and chelated forms found in plant sources **(Li, 2011).**
- It is commonly misunderstood that animal fats are completely fade up of saturated fat. However, the fact is that these fats are around **half saturated(palmitic acid and stearic acid) and half monounsaturated(palmitoleic acid and oleic acid,) (USDA FoodData Central).**
- **Liver alone** contains a concentration of micronutrients that is almost unmatched in the natural world. A single 100-gram serving of beef liver provides over 3,000% of the Recommended Daily Intake for Vitamin B12 and over 700% for Vitamin A (Retinol), along with massive amounts of copper and other essential minerals **(USDA FoodData Central)**.

Fats That Fight Inflammation

Omega-3 Fatty Acids (EPA & DHA) compete with arachidonic acid (an omega-6 fatty acid) for the same enzymatic pathways. This competition reduces the production of pro-inflammatory eicosanoids (like prostaglandins and leukotrienes) and increases the production of anti-inflammatory resolvins and protectins, thereby shifting the body's entire inflammatory balance towards resolution **(Simopoulos, 2002)**.

While often grouped with other saturated fats, stearic acid (abundant in beef tallow and cocoa butter) has been shown in systematic reviews to have a neutral effect on blood lipid profiles and does not raise LDL cholesterol in the same way other saturated fats might, supporting a more balanced inflammatory response **(Hunter et al., 2010)**.

Conjugated Linoleic Acid (CLA), a unique trans-fatty acid found primarily in the meat and dairy of grass-fed ruminants, can modulate the immune system and inhibit the expression of pro-inflammatory genes (like TNF-α) in adipose tissue and other cells **(Lehnen et al., 2015)**.

The potent, systemic anti-inflammatory effects of an Omega-3-rich diet can lead to a significant reduction in the pain and stiffness associated with chronic inflammatory conditions such as rheumatoid arthritis. Meta-analyses of clinical trials have demonstrated that high-dose supplementation with fish oil can have a measurable analgesic effect, potentially reducing a patient's reliance on non-steroidal anti-inflammatory drugs (NSAIDs) like ibuprofen or aspirin **(Goldberg & Katz, 2007)**

Protein & Fat Keep You Fuller

- **Protein** requires a more complex and extended digestive process compared to carbohydrates. This slower breakdown and absorption rate means it physically resides in the stomach and small intestine for a longer duration, contributing to a sustained feeling of physical fullness.
- **Animal fats** are the most energy-dense macronutrient and significantly decelerate the rate at which food empties from the stomach (gastric emptying). This pronounced delay keeps the stomach distended for longer, directly signaling mechanical fullness to the brain.
- **Protein** intake strongly promotes the secretion of **Peptide YY (PYY)** and Glucagon-Like Peptide-1 (GLP-1), both of which signal satiety to the hypothalamus in the brain. It also tends to suppress levels of ghrelin, the primary orexigenic (hunger-stimulating) hormone.
- **Fats**, particularly upon reaching the small intestine, trigger a significant release of Cholecystokinin (CCK), another potent satiety hormone that slows gastric emptying and signals fullness to the brain. They delay stomach emptying by **30–50 %**, smoothing blood glucose peaks and crashes. **(Feinle-Bisset et al., 2005).**

The Fat-and-Protein-Fueled Brain

Complete protein provides the crucial amino acid building blocks necessary for synthesizing neurotransmitters – the brain's chemical messengers that dictate mood, cognition, and alertness – and for constructing the very structural components of brain cells.

Fats contribute indispensable lipids like cholesterol and specific fatty acids for building and maintaining brain cell membranes and the insulating myelin sheath. Of these, **Docosahexaenoic acid (DHA)**, an omega-3 fatty acid found primarily in fatty fish, is the most abundant structural fat in the brain and is considered absolutely essential for proper neurological development and cognitive function **(Innis, 2007)**. They also offer a highly efficient and potentially neuroprotective alternative fuel source (ketones) and are essential for absorbing critical fat-soluble vitamins that support overall neurological function. Deficiencies in specific amino acids from insufficient protein intake can directly impair the production of these neurotransmitters, measurably impacting mood, cognitive function, and sleep regulation **(Gropper & Smith, 2017).**

The human brain is remarkably fatty: approximately **60% of its dry weight is fat (Kandel et al., 2000)** In low-glucose states, the brain efficiently uses ketones (produced from fat) for up to **60%** of its energy needs. Ketone metabolism produces fewer reactive oxygen species than glucose, supporting clearer thinking under stress **(Gasior et al., 2006)**. Deficiencies in specific amino acids from insufficient protein intake can directly impair the production of these neurotransmitters, measurably impacting mood, cognitive function, and sleep regulation.

Protein/Fat deficiencies and their effects

Without optimal protein consumption, the body faces these symptoms:

- Muscle tissue within the body breaks down to meet essential amino acid needs, leading to weakness, fatigue, and poor mobility.
- Severe cases result in **kwashiorkor** (a severe form of **malnutrition** caused by very **low protein intake**, even with calories from carbohydrates. It most often affects children and leads to symptoms such as: Swollen belly (edema), Fatigue, Irritability, Weak muscles, Skin and hair changes, and Stunted growth).
- Increased susceptibility to infections and delayed wound healing due to antibodies, enzymes, and immune cells depending on protein.
- Hair thinning, brittle nails, flaky or discolored skin from lack of structural proteins including keratin and collagen.
- Increases in depression, anxiety, and brain fog from the lack of amino acids such as tryptophan (serotonin precursor) and tyrosine (dopamine precursor), which are critical for brain chemistry.

Deficiencies in fat-soluble vitamins induce other symptoms:

- Hormonal imbalances for testosterone and estrogen, resulting in fatigue and low fertility in men and women **(Pilz et al., 2011)**.
- Brain-related issues such as mental fatigue/tiredness, memory issues, depression, and **increased risk of neurological conditions such as Autism and ADHD** (**Cannell, 2017).**
- Vision impairment, osteoporosis, easy bruising and bleeding, nerve damage, and autoimmune conditions.
- Dry, flaky skin and brittle hair.

Myths and misconceptions

Myth 1: “Too much protein ruins your kidneys”

- **Reality:** In healthy individuals, high-protein diets do not impair kidney function. Extensive systematic reviews and meta-analyses of the available clinical data have found no causal link between high protein intake and the initiation of kidney disease in people with normal renal function.

Myth 2: “All saturated fats are bad”

- **Reality:** Saturated fats such as **stearic acid** (tallow, butter) are largely **neutral** or **beneficial** for inflammation and cholesterol balance. It’s the **refined vegetable/seed oils** (high in omega-6) and trans-fats that drive inflammation, not traditional animal fats **(de Souza et al., 2015)**

Myth 3: “Plant proteins are equivalent to animal proteins”

- **Reality:** Most plant proteins lack one or more essential amino acids or have them in lower ratios, making them **incomplete** unless properly combined . Animal proteins deliver all nine EAAs in optimal proportions, critical for growth, repair, and neurotransmitter synthesis.

Myth 4: “Fats make you fat”

- **Reality:** Dietary fat is the most satiating macronutrient and can actually **reduce overall calorie intake** by slowing gastric emptying and stabilizing blood sugar. Low-fat, high-carb diets tend to increase hunger and overeating **(Feinman et al., 2015)**

Myth 5: “High-fat diets cause heart disease”

- **Reality:** Recent meta-analyses show **no clear link** between saturated fat intake and cardiovascular risk when carbs are controlled. **Omega-3** and **CLA** from animal fats have **cardioprotective** and anti-inflammatory effects **(Feinman et al., 2015)**

Global Heritage: Meat & Fat – The Foundation of Strong Cultures for Millennia

Contrary to mainstream information, **meat, organs, and animal fats** have been cornerstones of diets for cultures around the world for as long as humans have existed on Earth, from the arctic shores of the Inuit and Northern Europe, to the tropical heartlands of pre-colonial Africa and South America, a fact extensively documented by anthropological reviews of the human diet which consistently place meat at the center of our species' nutritional history **(Mann, 2007).**

The Arctic Example: The Inuit – Masters of an Extreme Animal-Based Diet

The Inuit people of Northern Canada thrived almost exclusively on **fatty marine mammals(seal, whale), fish(salmon, char), and caribou(a species of deer)**. They demonstrated incredible human adaptability to an extreme high-fat, high-protein, animal-based diet, historically exhibiting very low rates of chronic and inflammatory diseases. This reliance on animal fats was a non-negotiable prerequisite for survival, providing the immense caloric density required to endure the extreme cold **(Price, 1939)**.

Traditional European Wisdom: Valuing the Whole Animal & Its Fats

Across pre-industrial Europe, from the Mediterranean to Scandinavia, the consumption of the entire animal was a cornerstone of both peasant sustenance and aristocratic feasting. Traditional diets extensively utilized lard, tallow, butter, full-fat dairy, and eggs.For example, French cuisine relied on butter and duck fat, the Swiss and Nordic enjoyed rich cheeses and fatty fish, and Eastern Europeans use of lard and schmaltz for their traditional meals.

East Asian Traditions – Beyond Rice & Vegetables:

Contrary to popular belief, East Asian cuisines like Korean and some regional Chinese traditions deeply value fatty pork belly, **rich bone broths** simmered for hours (e.g., tonkotsu ramen broth), and utilize lard for flavor and cooking. The traditional Japanese diet, While balanced, included significant amounts of **fatty fish (sushi/sashimi grade tuna, mackerel, salmon), nutrient-rich eggs, and dashi (fish-based broth)**, contributing to their famed longevity.

A look at Ancestral Africa

Mainstream narratives often oversimplify traditional African diets, focusing predominantly on grains and vegetables. This overlooks the **vital and central role of animal products** in many pre-colonial and traditional meals across the continent. Animal foods provided essential protein, fats, and micronutrients, crucial for survival, strength, and cultural identity in diverse environments. For groups like the **Maasai, Samburu, Fulani, Toubou (Chad), Borana,** and others, livestock (cattle, goats, sheep, camels) are not just food, but central to their culture, wealth, and way of life. The effects of this animal-based pastoralist diet were extensively documented by the pioneering nutritional anthropologist Weston A. Price in the 1930s. His research revealed that these groups, subsisting on a diet rich in raw milk, blood, and meat, exhibited near-perfect dental health and a complete absence of the chronic inflammatory illnesses **(Price, 1939)**.

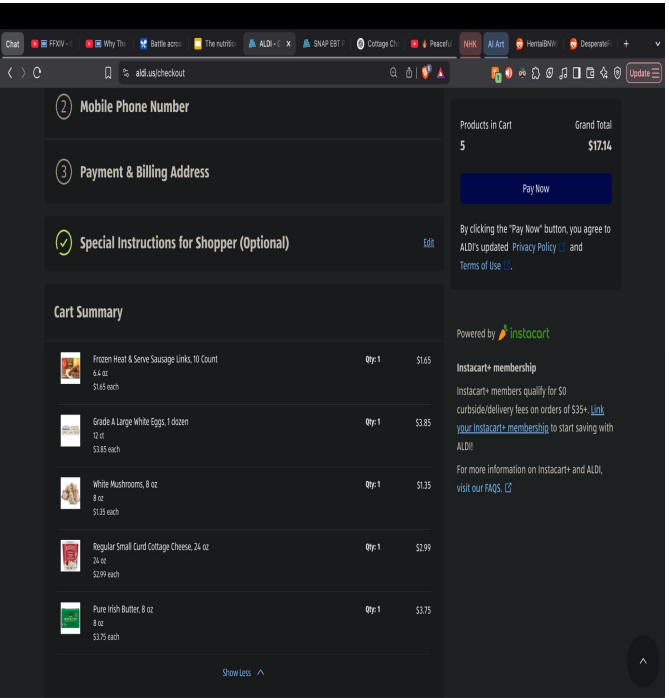
As an example, the following list showcases various cuisine staples from Pre-Colonial Africa:

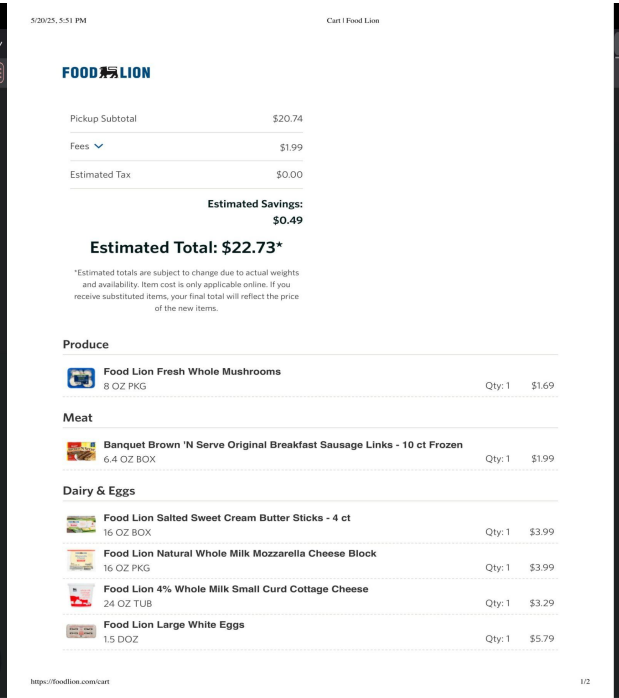
- **Pastoralist Traditions** (East & Sahelian Africa): Diets rich in **raw milk, blood, meat (goat, mutton, beef, camel), and rendered animal fats (tallow, shea butter)** sustained strong, lean pastoralist peoples like the Maasai, Samburu, Fulani, and others for centuries.
- **Nyama Choma** (East Africa): Celebratory grilled fatty meats (goat, beef) – emphasizing flavor and nourishment from the whole animal, including its fat.
- **Doro Wat** (Ethiopia): Iconic stew built upon Niter Kibbeh(spiced clarified butter)– a testament to the essential role of rich animal fat in creating flavor and nutrient density.
- **Potjiekos** (Southern Africa): Slow-cooked stews using tougher, fattier cuts of meat, rendered fat, and marrow bones, showcasing nose-to-tail eating.
- **Groundnut Stews** (West & Central Africa): Rich stews often featuring meat or fish, thickened and enriched with fatty groundnut (peanut) paste, often cooked with traditional fats.

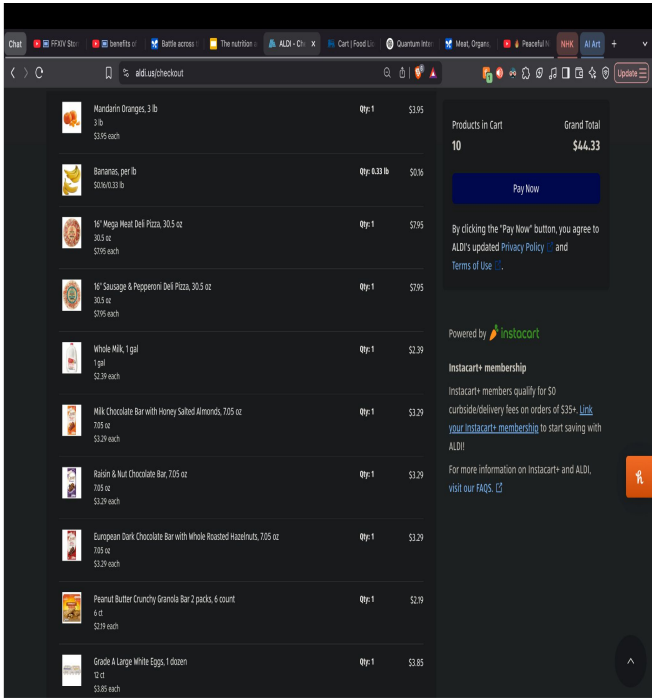
Author's Note: **I sincerely, deeply apologize if the information provided is entirely inaccurate to the cultures mentioned. Research into specific pre-colonial diets is ongoing and complex; these examples represent broad traditional patterns.**

Costs Analysis

It is often stated that animal-based protein sources are costly and not generally accessible to low-income households. However, stores such as Aldi and Food Lion offer relatively inexpensive sources of these foods, as compared to more processed, often synthetic foods. While the latter option can be cheap, they carry the risk of being devoid of nutrients necessary for the body and trade protein/fat for simple sugars, synthetic chemicals, and other carcinogenic elements. For example, the lists(as of 2024 A.D) showcasing **butter, eggs, sausages, mushrooms, and cottage cheese costs <u>less than $20</u>**, while the other costs **over $40 with orange, bananas, granola bars, chocolate bars, frozen pizzas,**







Reclaiming Health: Practical Steps to Nutrition Recovery

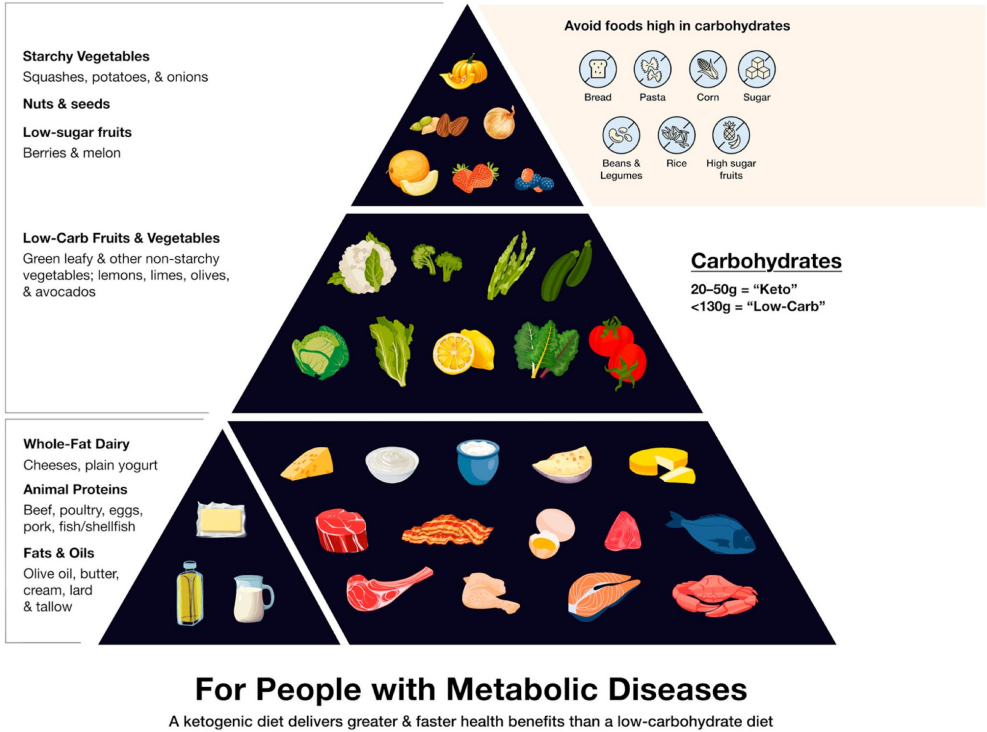
Understanding how **meat, organs, and animal fats** can be included in the average diett is the first step. The following diagram is a revised version of, if not a mirror-image of, the food pyramid of the mid-1900s, and offers a clear visual guide for optimal nutrition.

Base Tier: Prioritize beef, poultry, eggs, pork, fish, shellfish, and especially **organ meats** (liver, heart) at every meal. **Healthy Fats & Oils:** Cook with butter, ghee, animal tallow, lard, and olive oil. **Whole-Fat Dairy (If Tolerated):** Full-fat cheese, plain yogurt, heavy cream.

Middle tier: Include leafy greens, broccoli, tomatoes, mushrooms, avocado, olives, lemons, limes. These provide fiber, vitamins, and minerals.

Top tier: If you **MUST** include these, add **low-sugar fruits**: berries, small amounts of melon. Include **Nuts & Seeds** in moderation for healthy fats. Include starchy vegetables such as Potatoes, squash in small portions, less often, or let it be optional if you want to avoid them.

STRICTLY AVOID(or extremely limit) Refined Grains, Sugar, and Seed Oils: Bread, pasta, rice, corn, légumes, beans, cereal, sweets, soda, juice, canola oil, soybean oil, rapeseed oil, etc.



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